DOCUMENT RESUME

ED 176 900 PS 010 956

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TITLE A Paradigm Case Approach to the Study of Fantasy.
PUB DATE Mar 79
NOTE 12p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (San Francisco, California, March 15-18, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Concept Formation; *Definitions; *Fundamental Concepts; Philosophy; *Reliability; Research Design; *Research Methodology; Research Problems; Research Tools; *Scientific Concepts; Scientific Methodology; Scientific Research; Videotape Recordings
IDENTIFIERS *Inter Rater Agreement; Logical Positivism; Operational Definitions; Paradigm Cases; Prototypes

ABSTRACT

This paper argues that if researchers studying a recognized category of behavior, such as fantasy play or aggression, were to focus on prototypical instances of the behavior, there should be high inter-researcher agreement of just the sort that operational definitions were intended to secure. A study of fantasy play was conducted using a paradigm case approach which focused on prototypical instances of fantasy play. The spontaneous interaction of pairs of young children was videotaped for a total of nearly 24 hours. Ninety paradigm cases (prototypical instances) of fantasy play were identified in the recorded interaction. The inter-observer reliability of the identification was tested. Phi coefficients were computed to compare each of four naive observers' judgments as to which portions of eight randomly selected film segments showed play pairs engaged in prototypical fantasy play. The average coefficient was .89, with a range of .84 to .94. It is concluded that the paradigm case approach secures high inter-researcher agreement without incurring a risk of experimental bias posed by the a priori construction of an operational definition of the phenomenon under study. (Author/RH)

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ED176900

A PARADIGM CASE APPROACH TO THE STUDY OF FANTASY

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Paper presented to meeting of the Society for Research in Child Development, San Francisco, March, 1979.

PS 010956

Abstract

The requirement that theoretical terms be operationally defined was intended to secure inter-researcher agreement on the phenomenon under study by associating with each term a concrete experimental operation or measurement. We argue that recent research by Posner, Rosch, and others, on the structure of concepts impugns the methodological rationale for such definitions. This research further suggests that if researchers were to focus on prototypical instances of the concept, inter-researcher agreement on the phenomenon under study should be high.

The second author confirmed this suggestion using a "paradigm case approach" to the study of fantasy play. After videotaping the spontaneous interaction of pairs of young children, 90 paradigm cases (prototypical instances) of fantasy play were identified in the nearly 24 hours of recorded interaction. These cases served as a data base for a study of the structure and content of fantasy play. The inter-observer reliability of the identification was tested. Phi coefficients were computed to compare each of four naive observer's judgments as to which portions of eight randomly selected film segments showed play pairs engaged in prototypical fantasy play. The average coefficient was .89, with a range of .84-.94.

We conclude that the paradigm case approach secures high inter-researcher agreement without incurring a risk of experimental bias posed by the apriori construction of an operational definition of the phenomenon under study.

1. The Methodological Issue

The methodological requirement that theoretical terms be operationally defined grows out of the behaviorism that for several decades dominated experimental psychology. Operational definitions were thought to be necessary if psychologists were "to be rid of the hazy ambiguities which result in ceaseless argument and dissension" (Stevens, 1935a). Operational definitions were intended to secure inter-researcher agreement on terminology by associating with each term a concrete experimental operation or measurement. In this paper we argue that recent empirical research in cognitive psychology impugns the methodological rationale for operational definition; high inter-researcher agreement can be secured without the use of operational definitions. In fact, far from having the intended salutary effect on research methodology, operational definitions are often pernicious, especially in research directed towards the study of spontaneous behavior in naturalistic settings. In lieu of operationism, we propose for this type of research a "paradigm case approach" consonant with the results of recent research in cognitive psychology; we illustrate the approach by application to the study of fantasy play.

2. Operational Definitions

The requirement that theoretical terms be operationally defined arose during the 1930's in response to persistent doubts as to the scientific respectability of psychology. Under the influence of operationism and logical positivism, psychologists such as Skinner, Spence, Stevens, and Tolman attributed the unsatisfactory state of psychology to its lack of rigor in the formulation

of fundamental concepts (cf. Stevens, 1935b). The cure, they believed, lay in the use of operational definitions which would provide precise, unambiguous definitions of theoretical terms in terms of a restricted observational vocabulary that mentioned only concrete operations of a sort that were easily replicated by other researchers. The empirical content of psychological theories formulated in an operationally defined theoretical vocabulary would be both guaranteed and unambiguous; the ceaseless argument and dissension so characteristic of pre-operationist psychology would be eliminated.

There can be no doubt that psychological theorizing was empirically impoverished, due in part to a lack of rigorous methodology; however, the operationist cure was unsatisfactory. As philosophers and psychologists eventually realized (cf. Ginsberg, 1953; Hempel, 1965), the operationist demand for the explicit definition of theoretical terms in terms of an observational vocabulary was unsatisfiable. Even the theoretical terms of physics, chemistry, and biology were not defined explicitly in terms of an observational vocabulary, much less in terms of the restricted operationist one; nor was it clear that they could be so defined. In attempting to formulate an adequate criterion for empirical significance, philosophers have found it necessary to retrench repeatedly, to the point that there now remains nothing of the original positivist/operationist requirement of explicit definability of theoretical terms. What remains is the modest requirement that theories be testable, i.e., that they have observational consequences that are subject to empirical test.

In highly theoretical domains of psychology, notably cognitive psychology, one now finds little mention of operational definitions. Some researchers speak of "operationalizing an hypothesis," but this comes to nothing more than

specifying testable predictions of the hypothesis. Talk of operational definition remains widespread, however, in those domains that are concerned primarily with descriptive studies of behavior. Operational definitions, it is assumed, are methodologically necessary here if the researcher is to identify clearly and unambiguously the phenomenon under study. Thus, in research directed towards the study of spontaneous behavior (e.g., empathy, aggression, play, etc.), discussions of research methodology will often begin with what are termed operational definitions of the phenomena under study. Strictly speaking, the proffered definitions are rarely operational, since the definitions are couched in an observational vocabulary much less restrictive than that countenanced by operationists. Nevertheless, the use to which these definitions are put is operationist in spirit: they stipulate what is to count as an instance of the behavior under study, and the stipulation is formulated in a basically observational vocabulary. The research findings are to be interpreted as descriptive of behavior that satisfies the stipulative definition.

The rationale for undertaking research directed towards the study of spontaneous behavior is to achieve a better understanding of the particular behavior under study. Usually this is taken to involve the provision of both a principled description of the behavior itself (e.g., its frequency, structure, content, etc.) as well as of its etiology. Furthermore, one expects the resulting description to provide a principled way of deciding precisely which behaviors are instances of the behavior under study (much as physical chemists used the results of their research on gold to determine whether everything that had heretofore been taken to be gold was in fact gold). The methodological difficulty with operational definitions is that they frustrate

these research aims: by beginning with a stipulated definition of the behavior under study they effectively preclude the possibility of discovering that the behavior is more appropriately characterized in a manner different than the stipulated definition. After all, unless the operational definition was validated against pre-theoretical judgments as to which behaviors were instances of the behavior under study, there is no reason to take the research findings to characterize anything except that behavior which satisfies the operational definition. Thus, to the extent that research is necessary to improve our identification and understanding of the behavior under study, research under the operationist paradigm will be unilluminating. This is particularly to be expected given the generally recognized inadequacy of behaviorism; there is little reason to believe that the individuation of behaviors using strictly behavioral criteria will even roughly approximate our pre-theoretical individuation of these behaviors. Much recent research on spontaneous behavior, especially that conducted in a naturalistic setting, suffers from just the methodological difficulty being described: the operational definitions are wide of their mark; and as a result, the research findings based on these definitions have only limited applicability to the behavior supposedly under study. And to the extent that the operational definition fails to define a behavior coextensive with the one under study, research findings cannot be used to revise that definition.

3. The Paradigm Case Approach

The notion that operational definitions are necessary in order to secure high inter-researcher agreement on the applicability of theoretical terms rests on specific empirical assumptions as to the acquisition, structure, and use of concepts. In particular, concepts (including theoretical concepts) were assumed to be unstructured feature lists that provided necessary and sufficient conditions for the application of the correlative terms. Recognition of instances falling under a concept was assumed to involve recognizing that the instances satisfied all (or most) of the defining conditions. High inter-researcher agreement was assumed to require defining conditions the satisfaction of which could readily be ascertained by publicly replicable observations.

Recent research (Posner, Goldsmith, & Welton, 1967; Posner & Keele, 1968; Rosch, 1973; Rosch, 1978; Rosch and Mervis, 1975; etc.) suggests strongly that these assumptions are not well-founded, at least not for many concepts of natural language. Such 'natural' concepts are not unstructured feature lists; nor are their boundaries well-defined. Rather membership in the extension of the concept is defined in terms of similarity to prototypical instances of the concept. Recognition seemingly involves an appeal to a similarity metric defined on the prototypes: something is recognized as an instance of the concept just in case it is sufficiently similar in the relevant respects to prototypical instances of that concept. Although the structure of only a limited number of natural concepts, chiefly categorical concepts, has thus far been investigated, it seems likely that most natural language concepts will be found to have a similar structure, since these concepts are invariably acquired on the basis of exposure to a limited number of instances

of the concept. If so, then the high inter-subjective agreement that Rosch and others have noted on prototype recognition tasks can be expected to hold for many natural concepts. This suggests that if researchers concerned to study a recognized category of behavior such as fantasy play or aggression were to focus on prototypical instances of the behavior, there should be high inter-researcher agreement of just the sort that operational definitions were intended to secure.

4. Fantasy Play: An Application of the Approach

The second author confirmed this suggestion using a "paradigm case approach" to the study of fantasy play. After videotaping the spontaneous interaction of pairs of young children in a naturalistic setting, 90 paradigm cases of fantasy play were identified and extracted from the nearly 24 hours of recorded interaction. (By a "paradigm case" of fantasy play, we mean some actual or possible sequence of events that virtually everyone would recognize as a prototypical instance of fantasy.) The 90 cases served as a data base for a study of the structure and content of fantasy play (cf. Matthews, 1975, 1977, and 1978). The inter-observer reliability of the identification procedure was tested using eight 15-minute film segments selected randomly from the 24 hours of recorded interaction. Phi coefficients were computed to compare each of four observer's judgments as to which portions of the eight segments showed play pairs engaged in prototypical fantasy play. The average coefficient was .89, with a range of .84-.94.

5. Discussion

The methodological virtue of the paradigm case approach described above lies in the fact that it secures high inter-researcher reliability without incurring the risk of experimental bias posed by the apriori construction of an operational definition of the phenomenon under study. The paradigm case approach provides a set of prototypical instances of the particular behavior under study, thus providing a fixed referent for experimentation and observation, but the approach makes no attempt to define the concept, inasmuch as the appropriate similarity metric defined on the prototypes is left unspecified. The theoretical business of offering a 'definition' of the phenomenon is thus put where it belongs: after the experimentation and observation, not before it. Experimental results are thus able to play their expected role of determining the appropriate characterization of the behavior under study.

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